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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

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## Original Communications.

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### THE SURGICAL TREATMENT OF EPILEPSY

ARISING FROM INJURIES OF THE HEAD, WITH SPECIAL REFERENCE TO THE USE OF THE TREPHINE.\*

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No instance in the history of medicine affords a more brilliant result of experiments on animals, in the elucidation of disease, than those which have been made in the investigation of the essential nature and pathology of epilepsy.

For centuries literally nothing was known of its nature, causes, or treatment. The group of symptoms, however, which characterizes its attacks was so marked and prominent that even the most casual observer could not fail to be impressed. Accurate descriptions of the disease have been transmitted to us from the earliest period. Hippocrates, especially, has, in his own inimitable manner, drawn a vivid and lucid pen-picture of the symptoms of the disease. In the absence of physiological knowledge and of pathological data from which to form an idea of the essential nature of epilepsy, it is not wonderful that

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no progress beyond the observation of its coarser manifestations should have been made, notwithstanding the many efforts of the most brilliant minds to elucidate its nature or the various theories advanced to explain its phenomena.

For centuries not a single ray of light was shed on the subject by which the impenetrable darkness surrounding it might be dispelled.

Marshall Hall, by his experiments on animals, was the first to illumine this hitherto obscure subject and to blaze a path in the pathological wilderness by which all investigators might be guided. In 1850 he made a full and explicit enunciation of his theory of the reflex action of the nervous system (Croonian Lectures, delivered at Royal College of Physicians, London), and by his clear and lucid explanation enchaind the attention of the profession over the whole world. His theories of reflex action of the nervous system are now universally received and acknowledged. He pointed to the medulla oblongata as the center of the reflex nervous system, and proclaimed that all paroxysmal seizures were one and the same, differing only in degree; that the causes of these paroxysmal seizures were centric and eccentric; that these causes act on the reflex nerve center; that this center exhausts itself upon being called into powerful and frequent action, but gradually recovers, thus accounting for the cessation and recurrence of the seizures; and he especially claimed that epileptic attacks, like every reflex action, were always excited.

The name of this great philosopher and physiologist will ever be remembered, when the subject of nervous diseases is discussed, as the pioneer in that important and difficult branch of medicine—as the first to point out the way in which inquiries should be prosecuted. He gave such an impetus to the investigation of physiological and pathological studies that other energetic and enthusiastic investigators speedily followed.

Brown-Sequard, one of the most indefatigable workers in experimental physiology and pathology, after he had for twenty-five years investigated epileptic convulsions artificially produced



in guinea-pigs, demonstrated that convulsions resembling epilepsy were generally developed by wounding various portions of the nervous system; that in a short time after such injuries a state of increased irritability was developed and the epileptogenic zone, characterized by a certain degree of hyperesthesia of the cheek and the antero-lateral regions of the neck was formed, and that slight irritations of this region, by pinching the skin or pulling the hair, were sufficient to produce attacks. His conclusions are that the attacks are alone dependent upon a peculiar irritation, starting from the cutaneous ramifications of some centripetal nerves, and that even when they have their primitive cause in the nervous centers, some cutaneous nerve filaments are brought into a state of irritation and thus excite the attack.

The views of these investigators have, in the main, been confirmed and sustained by the researches of Schroeder Van der Kolk. According to this pathologist, epileptic convulsions are caused by an exalted action of the ganglionic cells of the medulla oblongata which are more or less rapidly exhausted by the spasms. The irritability of the cells having been restored by rest and nourishment, the capacity for reflex action is regained, and, upon the application of an external irritant, convulsions again ensue. He is of the opinion that though the primary irritation might be remote, a morbidly elevated sensibility of the medulla oblongata is always present and is the essential cause of the attack, rendering the organ mentioned more capable of discharging itself in involuntary reflex movements.

Nothnagel has confirmed the opinion of Van der Kolk by proving, experimentally, that there is a convulsive center in the medulla oblongata, a circumscribed spot through which general convulsions may be induced by reflex excitation. The medulla oblongata is also the seat of the vaso-motor center, the respiratory centers, etc., which centers are always more or less affected in epileptic seizures. It is, therefore, reasonable to conclude that the medulla oblongata is the chief seat of the dis-

case. This theory harmonizes the physiological principle with the pathological data, and it is now well understood that peripheral irritation conveyed to a susceptible medulla, whether from another part of the nervous system, from some viscus, or from a cutaneous nerve, equally excite epileptic convulsions.

Although the malady is characterized by symptoms clearly referable to certain parts of the nervous centers, no marked physical changes of those parts are discoverable after death. It is true that Van der Kolk, by microscopical examinations of the pons and medulla of epileptics, discovered certain changes, to wit, enlargement of the vessels, particularly in the posterior part of the medulla, together with an albuminous exudation between the nerve fibers, leading to induration, then to fatty degeneration and softening. Echeverria, by his post-mortem examinations and experiments, confirmed the opinion expressed by Van der Kolk. Myers also discovered a diseased condition of the blood-vessels, fatty degeneration and sclerosis, not only of the medulla, but also of the upper part of the spinal cord and of the cerebellum. There is scarcely a disease or injury of the cranium or its contents which has not been noticed in connection with the disease, but these various conditions have often been found in the bodies of persons who died of other diseases, and who had never been the subjects of epileptic convulsions. Again, examination of those parts in epileptics who had died from intercurrent diseases have revealed not the slightest changes. It is a fact fully authenticated, that no invariable lesion of the nervous centers, or of any other part, has been determined on as the *causa proxima* of epilepsy. It is probable that various pathological changes in the brain or its membranes, or in the nerves, whether sensor, motor, or sympathetic, may excite the parts of the pons and medulla in which the reflex cells are located and give rise to the group of symptoms which characterizes epilepsy, just as a sensory nerve always gives expression of pain to different impressions. No discoverable pathological lesion is present in the earlier stages of the disease, and those found in the post-mortem examinations of epileptics are second-

dary or accidental. Epileptics seldom die from the disease, and although attacks may be of frequent occurrence and of great severity, they may live for many years in the enjoyment of perfect health, and are able to attend to the most weighty duties of life. History tells us of a number of the most gifted men, whose achievements with pen or with sword stamped them as individually great, who were the subjects of frequent attacks of epilepsy.

Epilepsy should then, in my opinion, be regarded as essentially a functional disease; for, while it is generally conceded that every vital act is followed by some change in the organism and every diseased condition must necessarily be accompanied with change of tissue, science has not yet been able to demonstrate those changes.

The origin of the disease is doubtless due to an increased excitability of the medulla oblongata and pons varolii—the reflex nerve centers—in consequence of which these reflex centers respond to peripheral irritation much more readily than in their normal condition, and the motor manifestations, although they do not differ in their nature from the normal reflex movements, are intensified far beyond their normal degree.

The cells of the excito-motor and vaso-motor centers are so highly charged with excitability that they explode on the application of a stimulant conveyed through the nerves. This part of the central nervous system has been aptly compared to a Leyden jar, which explodes upon the contact of an electrode when sufficient tension has been attained (Van der Kolk). The state of tension in the medulla oblongata is gradually induced until it reaches its acme, when from the action of some eccentric peripheral irritant, spasm succeeds spasm, until the excitability is exhausted. It again accumulates, to be again discharged in the well-known routine of the epileptic cycle.

The phenomena of an epileptic seizure are due, in the first instance, to excitation of the vaso-motor center, which induces constriction and consequent anemia of the cerebral vessels, causing the loss of consciousness from the abolition of the activ-

ity of the cortex cerebri. Often this is the only phenomenon met with, and it then constitutes what is known as *petit mal*. But in a larger number of cases the excitation of the *convulsive center* comes on simultaneously and gives rise to general convulsions. The spasm of the cerebral vessels, as well as those of the face, is of very short duration, and is rapidly succeeded by paralysis and venous congestion of those vessels, which is greatly aided, if not caused, by the spasmodic contraction of the muscles of the neck. The interference with the respiratory act and the intense venous congestion of the cerebrum readily account for the coma succeeding the convulsion.

The experiments of Kussmaul and Tenner prove that cerebral anemia stands in definite relationship to epileptic seizures. Donders made direct examination of the brain by means of a watch-glass placed in the opening of a trephined skull, and demonstrated experimentally the anemic condition of the brain. Others have contended that epilepsy depends upon cerebral hyperemia. Like most contested points, there is truth on both sides of the question. There is, doubtless, in the commencement of every attack, upon the discharge of the vaso-motor center, a spasm, with consequent anemia of the cerebral vessels, but this effect is momentary, and is succeeded rapidly by intense venous congestion.

A case in which I resorted to the trephine for the relief of traumatic epilepsy, in 1878, illustrated in an admirable manner the changes that take place in the intra-cranial vessels during a convulsion. A spur of bone from the inner surface of the button, which was situated on the top of the head directly over the sagittal suture, had perforated the dura mater and entered the longitudinal sinus. As soon as the bone was removed from its position by the trephine a continuous stream of blood followed. A soft sponge was at once pushed into the opening for the purpose of arresting the flow. A violent convulsion was immediately excited when the sponge was removed. For perhaps half a minute the face became very pallid and the flow of blood from the opening in the sinus ceased entirely; then the

face became purple, and the blood gushed forth in a large stream with great force. The sponge was again pressed into the opening, with the effect of restraining the hemorrhage, and retained in position with a bandage. The patient recovered without further trouble.

It will not be denied, I think, that *two factors* are essentially necessary in the development of every epileptic seizure. First, the increased and persistent excitability of the reflex centers, and, second, the peripheral irritant. The disease can not occur without the concurrence of both of these factors. An individual may have all the predisposing circumstances necessary to place the reflex centers in the highest degree of susceptibility, and this susceptibility may lie dormant for years, even for a life-time, unless the exciting cause comes into action. It is true that in many cases no peripheral irritant can be discovered, and oftentimes even the influences which develop the increased excitability of the reflex centers are not manifest. That the exciting cause can not be ascertained is no argument against the existence of such. In a great number of diseases the causes acting in their production are entirely unknown. It has been aptly said, "Happy is the physician who knows the cause of disease," for most usually when the cause becomes known its essential nature and treatment are easily discovered.

Inherited nervousness is the most frequent cause of the exaggerated excitability of the reflex centers. It is not essential that the parents should have had epilepsy to transmit the peculiar susceptibility to the offspring. It is only necessary that the father or mother, or some ancestor, should have been cataleptic, neuralgic, or the possessor of a very irritable nervous system. The irritable, sensitive medulla and pons varolii are inherited, not the epilepsy.

The nervous erethism engendered during dentition and at the period of puberty often develops the peculiar predisposition. So also will the long-continued use of alcoholic stimulants, sexual excesses, syphilis, and, in fact, any cause which is calculated to enfeeble the general system or to induce hyper-sensibility of

the nervous system. Probably no circumstance more frequently predisposes the reflex centers to abnormal discharges than powerful and persistent local irritations. The constant fretting of these centers is almost certain to develop the necessary excitability; besides, it has been shown by the experiments of Tiesler, Klemm, Niedieck, and others, that these local irritations often set up ascending neuritis in the peripheral nerves which gradually approaches the central nerve mass, involving it in the same diseased action. Hayem says the path of transmission of the irritation from the nerve to the spinal center is two-fold—first, by the interstitial tissue; and, secondly, by the axis cylinders which are swollen and moniliform in the central end of the nerve.

The exciting causes of epilepsy, which are supposed to exercise a more direct and manifest influence in the production of the disease, are as numerous as the circumstances which may give rise to irritation in various parts of the body, as teething, intestinal worms, indigestible food, disorders of menstruation, genital irritations, neuromata, lesions of nerves, retraction of cicatrices, injuries of the skull, foreign bodies, etc. I wish, however, to restrict my remarks to epilepsy arising from injuries of the head, which demand the consideration of operative measures.

Echeverria estimates that full ten per cent of all epileptic seizures are due to injuries of the head. Such wounds are more likely to excite attacks than those of any other part of the body, for the reason, probably, that the branches of the trigeminus nerve, which has its origin directly from the reflex nerve mass, are freely distributed to parts of the scalp, and to every part of the dura mater; peripheral irritations are, therefore, more readily transmitted; the flame is much nearer the combustible. Even when the primary effects of such wounds have been dissipated, or when they were too slight to have claimed attention, they are not infrequently, sooner or later, followed by the most distressing attacks. While it is true that great violence is often inflicted on various parts of the head without the slightest dis-



turbance of the nervous system, it is equally true that epileptic attacks often occur from injuries of the most insignificant character. Westphal has proven conclusively by experimentation that epileptic convulsions, recurring every two or three weeks, may be produced by slight blows upon the heads of guinea-pigs. A case illustrative of this fact came under my observation in the human subject a few years since. A bright lad, twelve years of age, who had no hereditary predispositions, while running a foot-race with some companions, struck the right side of his head against a tree, producing a contused wound of the scalp, just above the lower border of the parietal bone. A short time afterward he was seized with a convulsion. He had a recurrence of the spasms in three weeks much more severe than the first, and they have since continued to recur at much shorter intervals and with greater violence, till now he is in a state of confirmed fatuity. I was consulted by the father in reference to the use of the trephine in this case, but after mature consideration I became satisfied that the indications for the operation were not sufficiently marked, and therefore declined interference. He afterward fell into the hands of other surgeons, who did trephine the skull, but with no benefit.

It is impossible to predict the consequences of violence inflicted on the head, however severe its nature or however trivial its morbid manifestations. It is equally difficult to foretell the time when the evil results will take place. It may be in a few hours or days, or it may be postponed for twenty years. Professor Dudley used to mention in his lectures a case in which epilepsy resulted from an injury of the skull, inflicted sixteen years before, which was entirely cured by the trephine.

Several cases have come under my observation in which ten years elapsed before the occurrence of the attacks.

The trauma may involve merely the scalp in a contused or lacerated wound, which, in healing, forms a firm, hard cicatrix, entangling some of the terminal extremities of the nerves, thus setting up a peripheral irritation that in course of time excites an attack of epilepsy. Liddel, in a very interesting paper, pub-

lished in the Transactions of the American Neurological Association, (volume i, p. 157, 1875), calls attention to the fact that the entangling of nervous fibrillæ in cicatrices of wounds gives rise to neuralgia and other neuroses. The same condition may excite epileptic attacks in persons who possess the necessary susceptibility. Five cases of epilepsy have come under my observation which could certainly be traced to this condition as a cause. In each of these cases the cicatrices were the seat of pain and of a burning sensation which occurred at irregular intervals, lasting for a few days, then disappearing for a time. Increased sensibility, together with elevated temperature of the part involved, were constantly present. The morbid sensibility was so acute in several of the cases that the slightest contact with the seat of the original wound gave rise to great suffering, and in one case pressure upon or even handling the part in the necessary examination was followed by an attack of epilepsy within the succeeding twenty-four hours. In every case the patients were gloomy, despondent, and listless, irritable, irascible, and disinclined to any kind of business. The time which elapsed from the reception of the wound to the first epileptic seizure varied from two months to three years.

A blow on the head, whether the scalp is lacerated or not, may result in serious mischief to the bones of the cranium without fracture. Pericranitis may be developed, with subsequent disease of the bones, or the bones may suffer violent contusion at the time of the injury. In either case the diseased action is very likely to be followed by osteo-sclerosis, or by hypertrophy from the persistence of hyperplastic inflammation. The eburnation or the hypertrophy is most usually diffused, but is sometimes localized and confined to a small surface. I have met with several cases in which the eburnation involved but a very limited portion of bone, and others in which the hypertrophy was exhibited in the formation of small nodules of bones, some not larger than a garden pea, others as large as an almond. In two cases which have fallen under my observation there were narrow spurs of



bone growing from the inner surface of the calvarium nearly one half an inch in length.

When the eburnation or the hypertrophy is localized, epilepsy is much more liable to be excited than when they are diffused. The effect of pressure by points upon the brain or its membranes never fails to give rise, sooner or later, to the most serious neurotic affections. The presence of a point of irritation caused by such changes in the bones is indicated by pain, a sense of pressure or weight, or of soreness in the injured parts, together with headache, and at times with symptoms referable to disturbance of the motor area of the brain.

Again, the inflammation may be of the destructive variety, and lead to necrosis or osteo-porosis, which are followed by the same symptoms that attend those pathological conditions in other parts of the body. It is not difficult to understand these pathological changes in the cranial bones from blows upon the head, when we reflect, in the first place, that the relationship is so close, the association so intimate between the pericranium and the dura mater, that a morbid state of the one very rarely exists without implicating the other, and in the second place, that the coverings of the brain, the *tutamina cerebri*, are composed of so many histological elements, which differ widely in their capacity for healing. The common integument is more vascular, more sensitive, and enjoys in a higher degree the power of restoration than the parts which it covers, so that while it may have quickly recovered from the effects of a wound, the parts beneath are still laboring under the influence of the injury, and the changes mentioned may result from perverted nutrition or from pathological action.

But the most frequent causes of traumatic epilepsy are old fractures of the cranial bones ; fractures which may have been produced months or years previously. The brain is protected against injury by a bony spheroid which is accurately adapted to its surface so that any irregularity of the internal surface of the bony envelope produced by fracture will certainly impinge to a greater or less extent upon the membranes of the brain. The

point of pressure will in many cases give rise to meningeal and cerebral irritation associated with symptoms of concussion or compression. Unless serious injury has been inflicted at the same time upon the brain or its membranes, these symptoms will pass off without any aid from the surgeon. The irritation, however, characterized by its special symptoms, will in many cases persist and demand the careful consideration of surgical means for its relief. The sentiment of the mass of the profession has been and still is in favor of non-interference in most fractures of the cranial bones with depression, unless attended with marked and persistent symptoms of compression of the brain. An exception, however, is made by the majority of surgeons in punctured fractures, and by some in compound. It is true, that when the inner surface of the depressed portion of bone is smooth and broad, the brain will readily accommodate itself to the pressure, however great it may be, and the primary symptoms will soon pass off; but when greatly depressed fragments of sharp, spiculated bone are driven upon, probably into, the cerebral mass, cerebral and meningeal irritation will speedily ensue and often run into fatal encephalitis. Under these circumstances the early resort to the trephine is, in my opinion, demanded to prevent the immediate consequences as well as to guard against the remote effects. If the trephine is withheld under these circumstances and the expectant treatment adopted in lieu, the patient may escape immediate death, but will live in constant jeopardy from the slow, insidious form of irritation which will often call for redress at some remote period. Even when the injury to the intra-cranial contents is not so great as to produce immediate effects, the slight point of irritation left will often sooner or later excite epileptic attacks. Again, it frequently happens that in the repair of broken fragments of the skull, osteophytes spring from the new bone formation which fills the interspaces between the fragments, and the pressure of their sharp points upon the membranes evokes the necessary amount of irritation for the development of the disease. Preternatural pressure upon the membranes of the brain may be borne without much evidence

of its existence for a time, but if long continued will give rise to such irritation and increased sensibility at the point of pressure that bad results will almost inevitably follow. A person who is the subject of accentuated pressure upon the membranes of the brain from fractures of the skull is like one who has the sword of Damocles suspended over his head, which is liable at any time to fall with disastrous effect.

The inveterate nature of this distressing and terrible disease, and the doubt pervading the professional mind since the days of Hippocrates and Galen as to its entire and permanent curability, have caused epilepsy to be regarded as a reproach upon our art. An attack of the severer type of the disease overwhelms the subject and the friends with consternation, and its repetition, often frequent, robs them of confidence or hope of relief, while the display of its ensign to the physician and surgeon is a signal for a contest in which trustful and assured reliance in the resources of therapeutics or operative endeavor is either absent or greatly weakened. The history of the prognosis of the disease, as held by the great lights of our science, presents a varying view, some claiming a large majority of cases to be hopeless, while others of equal authority have with more patience and accuracy distinguished its types of different origin and causation, and have reached more favorable and auspicious conclusions. Under advancing knowledge of its essential pathology, the number of the latter is steadily increasing, and with reference to its treatment the appliances of the therapeutic armament are becoming more full and scientific, as well as satisfactory in results. The pathological postulate advanced in this paper is, that epilepsy is fundamentally reflex in its character, and this can not be challenged as to many expressions of the type known as *epilepsia gravior*. The opinion is herein ventured that the prognosis in those cases which are distinctly reflex, and which undeniably have their origin in eccentric irritations, under prompt and judicious treatment should be favorable; and that the removal and abatement of the irritant cause threatening or inducing the dire consequences of the disease is a rational and

scientific procedure, in the highest degree justifiable in the hands of the discriminating surgeon. There can be no doubt but that the timely and skillful removal of the traumatic sources of peripheral irritation will yet relieve the profession of the pessimistic prognosis with which it has so long deemed it necessary to enshroud the hapless victim of epilepsy.

It has already been claimed that *two factors* are essential to every epileptic attack, viz., increased susceptibility of the reflex nerve centers and peripheral irritations, and that these conditions must be in operation at the time of the attack.

In November, 1879, a lad, seventeen or eighteen years of age, was received in our hospital suffering from frequent and violent attacks of epilepsy, which followed an injury inflicted on the head in a fall from a stable-loft some four or five years previous. The convulsions commenced about a year after the injury, and recurred at first once a month, but had gradually become more frequent, until he came into the hospital. He then had returns every week, and as many as fifteen or twenty during the day and night. The day after the attacks he usually got up and was apparently as well as ever with the exception of general soreness.

The seat of the injury, which was found on the forehead near the edge of the hair, exhibited a well-marked scar of the scalp, with a slight depression of the bone underneath. Constant pain and tenderness, greatly increased by the approach of the convulsions, were present. He was brought into the amphitheater of the hospital and examined by Professors Stephen Smith, of New York; Mussey, of Cincinnati; Choppin, of New Orleans; L. P. Yandell, of Louisville, and other distinguished gentlemen, delegates to the Health Association which was then in session in our city. Without a dissenting voice they concurred with me in the opinion that the trephine was not only indicated but urgently demanded.

The trephine was used in the presence and with the kind assistance of the gentlemen mentioned; the portions of bone removed exhibited small osteophitic growths along the line of the

original fracture. The dura mater was apparently healthy. The wound was left open for free drainage. A short time after the patient was carried to the ward he had a severe convulsion, but this was the last he ever had. His wound healed kindly, and he continued to improve for more than two months: at this time it was noticed that he walked unsteadily and complained of vertigo. The unsteadiness of gait increased so that in a short time he reeled like a drunken man when he attempted to walk. His respiration became irregular and deglutition difficult, and at the end of five months he sank into a deep lethargy which ended in death.

A post-mortem examination revealed the medulla oblongata and pons very much softened, with greatly enlarged vessels, the pathological changes extending into the under surface of the cerebellum. In this case the removal of the peripheral cause put a stop to the oft-repeating spasms, although the medulla and pons were in that special condition which is most likely to give rise to the disease, and progressed to the death of the patient without a symptom of the return of the epilepsy.

The indication, then, to be observed in the treatment of the disease is to sever the combined action of these two factors; to break up the inter-dependence existing between them by (1) removing the existing cause, the peripheral irritation, and (2) by modifying or subduing the morbid excitability of the reflex center. In attempting to carry out the first indication of treatment in the cases to which my remarks are especially addressed, those arising from injuries of the head, too much care and attention can not be bestowed on the subject. Each individual case should be investigated with the view of determining the exact nature and situation of the exciting cause, of tracing out the source of the peripheral irritation.

It frequently happens that old injuries of the head, even when associated with epilepsy, have no causative effect in the production of the attacks—that they are merely incidental, while the true exciting cause is situated in some remote part of the body.

A little girl from McMinnville, Tenn., twelve years of age, was brought to me, who had four years previously fallen from a porch, a distance of nine feet, and injured her head, as well as the left leg between the knee and ankle. She was rendered insensible for several hours, but had no further trouble from the head injury, which healed kindly and rapidly. Her leg, however, continued in an inflamed condition, and eventually an abscess formed, and was opened. In the course of a few months a number of fistulous orifices opened, through which a probe could be passed to denuded bone. Two years subsequent to the fall she was attacked with epilepsy, which continued to recur every few weeks until she was brought to the city and placed in my care. Upon examination a well-marked depression of the skull was discovered just above the anterior-inferior angle of the parietal bone. There were, however, no symptoms indicating a point of irritation connected with it. There was neither pain, nor increased sensibility, nor elevated temperature, nor other evidences of trouble about the part involved in the original head wound. The skin of the leg about the injured region was of a dark livid hue, and was perforated with a number of fistulous openings, through which the probe detected dead bone. The limb was the seat of continuous pain and increased sensibility, which were always greatly aggravated upon the approach of an epileptic seizure. An operation for the removal of the dead bone was made. She has never had a convulsion since, and is now, five years afterward, in the enjoyment of the most excellent health.

In this case, though there had been a fracture of the skull, with well-marked depression of bone, no symptoms of irritation at the seat of the injury of the skull existed. On the other hand, a peripheral irritation was kept up by the necrosed bone of the leg which culminated in the development of the epilepsy.

If the epilepsy is dependent upon the entanglement of nervous fibrillæ in cicatrices of the scalp, and the symptoms (increased sensibility, pain, elevated local temperature, etc.) point to the original wound as the source of the irritation to which



the attacks are due, it is the imperative duty of the surgeon to excise the old scar, with its included fibrillæ of nerves, and thus abate one of the factors which is essential to the continuance of the disease. No other remedy offers any hope of relief. In the five cases of this character which have fallen under my observation, the cicatrix was thoroughly removed and the wound left open to heal by granulation. In all of these patients the attacks were arrested. Two have been recently examined, after three years' time.

In the case of a gentleman from Mississippi, twenty-three years of age, the injury was inflicted on the forehead, extending from the edge of the eyebrow to the coronal suture, by a piece of wood, driven off while splitting fire-wood. A firm, indurated cicatrix marked the site of the original wound. The scar was the seat of constant pain and was very tender to the touch, the most sensitive part corresponding to the course of the supra-orbital nerve. The epileptogenic zone was well marked. He had been the subject of epilepsy for three years and had taken all the usual anti-epileptic remedies. The first attack came on eight months after the injury and recurred every two weeks, preceded by increased local pain, severe headache, etc. The whole of the scar was carefully dissected out, the incision extending downward so as to include the supra-orbital nerve from its passage through the supra-orbital foramen to as near its terminal branches as possible. The night following the operation he had two severe convulsions. Since then he has been entirely free from the attacks, now three years.

In May, 1880, while attending the meeting of the American Medical Association, in Atlanta, I was consulted by a gentleman from Alabama, aged forty-five years, who had been suffering from epilepsy for more than a year, arising, as his physician thought, from an injury to the skull inflicted by robbers with a rough stick. The scalp was severely lacerated and the patient struck insensible, in which condition he remained for a number of hours. He gradually recovered from his stupor and managed to reach his home, when his wound was dressed by his physi-

cian. The wound healed but left a very tender, irritable scar. Convulsions followed six months after the injury and recurred sometimes once and sometimes twice a month. More than a year had elapsed and he was still the subject of frequent attacks of epilepsy. Upon examination, a painful, sensitive, and puffy cicatrix was found situated over the junction of the frontal and parietal bones of the left side. The general health of the patient was indifferent. He was feeble, nervous, and sleepless with indigestion, constipated bowels, etc. With the kind assistance of Prof. Gunn, of Chicago, Prof. Lankford, of St. Louis, and others, I excised the tender and sensitive scar to the bone, the surface of which was roughened and irregular. It was the opinion of Prof. Gunn that the trephine should have been used, to which opinion I was myself inclined; but, having no instruments except those of a pocket-case, I had to content myself with what was done. The patient quickly recovered from the operation and returned to his home. I received letters from him frequently for two years. He had no more convulsions, but his health remained bad and he continued very despondent.

It may be safely concluded that when the symptoms point to an old scalp-wound as the source of the eccentric irritation which gives rise to the epileptic attacks, the indication is clear and unmistakable, to excise the cicatrix with its included fibrillæ of nerves.

If the epilepsy is the sequence of a contusion of the cranial bones which has caused hyperplastic inflammation resulting in osteo-sclerosis or hypertrophy, and there are unmistakable evidences of a peripheral point of irritation from the pressure of thickened and irregular bone, or from intra-cranial effusion induced by the diseased action, the trephine may be resorted to with the greatest hope of success. The sclerosis or hypertrophy is sometimes circumscribed and limited to a small point, an exostosis or nodule growing from the inner surface of the skull, at the seat of the original wound, which may be included and removed by the single application of the



trephine. Even when these changed conditions are more or less diffused, a special point of irritation may be present, indicated by pain of a dull, heavy character, which, if not constant, always occurs at the same point. The removal of the bone covering this fixed point of irritation will usually arrest the paroxysms of epilepsy.

In other cases many applications of the trephine are necessary to relieve the pressure of the ingrowing bone. In one case in my own practice six large crowns of the trephine were found necessary to surround and separate the thickened and roughened bone, which, after the angles were rounded off with Hey's saw, left an opening as large as the palm of the hand. Yet the patient recovered without an unpleasant symptom, and was cured of his epilepsy.

In those cases which can be referred to the irritation caused by necrosed or carious bone there are present, in addition to the signs of local irritation, the usual symptoms which characterize the presence of diseased bone. With these symptoms pointing to the origin of the epilepsy, the trephine is urgently demanded, and should be resorted to without hesitation. The operation should accomplish the removal of the whole of the diseased bone, however extensive. In one case, Dr. Stephen Smith removed the whole of the right parietal with a great part of the frontal and occipital bones, which were in a state of caries, the result of a traumatism. Professor Gross reports a case in which a portion of necrosed bone was incarcerated by an overlapping ledge of bone. The sequestrum was not only prevented from escaping in consequence of the narrow opening, but the irritation which its presence exerted upon the brain and its membranes caused repeated attacks of epilepsy, which permanently disappeared upon the extraction of the offending substance. (Gross' Surgery, 1882, p. 88.)

Two very interesting cases of epilepsy, due to necrosis of the cranial bones, have come under my observation :

1. A steamboat captain, thirty years of age, who had been for several years the subject of constitutional syphilis, was struck

with a walking-stick on the left side of the upper part of the frontal bone. The wound inflamed, and in a few months the skin covering the part was perforated by a number of fistulous openings which communicated with the dead bone. Eight months afterward epilepsy set in and continued to recur with increasing severity and frequency for nearly a year afterward, when he came under my care. The symptoms pointed clearly to the necrosed bone as the exciting cause of the convulsions. The whole of the dead bone, the size of a silver dollar, was removed by the trephine and Hey's saw. He had two convulsions the day following the operation, but recovered entirely, and has remained free from epileptic attacks.

2. In the second case, which was reported in the Nashville Journal of Medicine and Surgery, 1866, a young man twenty-three years of age was wounded in the battle of Resaca, Ga., by a minie ball in the left temporal bone, just above the ear. He was carried to the hospital and examined by the surgeon in charge, who pronounced it a mere scalp wound, and ordered cold water applications. The patient was confined to his bed for a week with fever, but gradually recovered sufficiently to act as a ward nurse. He served in that capacity but a short time, as his mind became more and more feeble, until he could no longer recognize his own friends. He was then discharged from the service and carried to his father's home in Jackson County, Tennessee. There he remained in a state of imbecility for a year. Four months after his return home he was seized with severe convulsions, which recurred two or three times a week. Eight months after the development of epilepsy he was brought to Nashville and placed in my charge, the most deplorable case I ever witnessed, a driveling imbecile, with almost daily convulsions, and incapable of attending to the calls of nature. An examination of the site of the wound revealed a large linear cicatrix an inch above and a little in front of the left ear; about an inch and a half posterior to the ear and on a line with the scar a small pouting orifice was found, giving exit to pus. The probe passed into the small opening came at once

in contact with dead bone. With very little hope of relief from the desperate condition in which the patient was placed, I proposed to remove the diseased bone with the trephine, which proposition was eagerly accepted by the friends of the young man. An oval flap was raised and a large-sized trephine applied. In a very few turns of the instrument the bone was cut through and removed. To my utter astonishment, immediately beneath and embraced by a few fibers of the dura mater *was an ounce minie ball*, which was quickly turned from its bed. The patient recovered after a pretty sharp attack of erysipelas of the scalp. He had a few light convulsions after the operation, when they ceased to return. His health and the condition of his mind gradually improved, but it was six months before he was able to converse intelligently, or to attend to his own wants. He has never been the bright boy he was before he received the wound. In a conversation with him three years since, he told me that the last thing he recollected was when he was in the battle and the balls were flying so thick and his comrades falling so fast around him that he pulled his slouch hat down over his ears and eyes that he might not hear the unpleasant whistle of the balls or see his comrades fall. His life was a blank to him until several months after the operation.

If the epileptic attacks are referable to marked depression of the bone or to the formation of osteophytes or other changes the result of old fractures of the skull, and the symptoms point clearly to the original wound as the seat of the peripheral irritation, the trephine should be appealed to without the slightest hesitation at the earliest moment possible and the sources of local irritation removed. In such cases the judicious use of the instrument is capable of effecting great and lasting benefit to patients and honor to the profession.

The practice of trephining the skull for the relief of epilepsy was resorted to by the old surgeons without discrimination and without reference to any special indication. Such reckless abuse of the operation caused it to fall into disrepute from which it has never fully recovered. Prof. Dudley, of Lexington, Ky.,

was the first in this country and possibly the first in the world to advocate and practice the operation from a rational standpoint. The brilliant results which he obtained from the use of the trephine in cases of epilepsy caused by injuries of the head arrested the attention not only of his pupils, who were scattered all over the country, but also of the profession generally. Many American surgeons have since resorted to the operation for the cure of certain forms of epilepsy, among whom may be mentioned Warren, Hayward, Brainard, Dawson, Bigelow, Gross, Pancoast, Gilmore, Van Buren, Echeverria, Blackman, Sayre and others. From tables of the operation collated by Stephen Smith, Billings and Echeverria, ninety-two (92) American operations are reported, of which sixty-three (63) were cured, thirteen (13) ameliorated, two (2) not changed, fourteen died. Walsham, in the Bartholomew Hospital Reports of 1883, has collected eighty-two (82) cases, to which he has added forty-eight (48) collected by Billings and others, making one hundred and thirty (130) in all, of which number seventy-five (75) were completely cured, eighteen (18) improved, seven (7) unimproved or worse, thirty (30) died. To this table may be added thirty (30) cases of epilepsy from old injuries of the head operated upon by myself. Of these, twenty-five (25) were cured, three (3) ameliorated, one (1) not changed, one (1) died.

These statistics prove that the mortality following the operation of trephining the skull in traumatic epilepsy is not greater than that following other operations of equal magnitude. The hope may be reasonably indulged, from the great advances made during the last decade in the treatment of operation wounds, that the mortality in cases involving surgical interference in diseases and injuries of the skull, of the meninges, and of the brain itself may be still further reduced, and that the same improvements in the results of such operations may obtain as in those involving the peritoneum, which was formerly supposed to be as susceptible of rapidly fatal inflammations from traumatisms as the cerebral meninges.

That the operation may be followed by the full measure of

success, it is essentially necessary that certain points of practice in connection with it should be thoroughly understood:

1. That the operation should be done as early as possible, because the long-continued irritation and interference with the healthy nutrition of the brain and nervous system will often beget a permanent impression, which will remain after the point of irritating bone has been removed.

2. The operation should be thorough and complete, for if all of the offending part is not removed no benefit will accrue.

3. The operation should be carefully and cautiously done. No one can foretell the changes that may have taken place in the parts around the injured bone, and a rude operation may cause irreparable mischief, which might have been avoided by one carefully planned and skillfully executed.

4. The wound should be dressed after the open method, or such arrangements made for drainage as will thoroughly effect the object, for a large amount of fluid is discharged from its surface, which, if confined, might cause undue pressure on the membranes and the brain.

5. The most careful after-treatment should be instituted, to prevent destructive inflammation.

With a strict observance of these precautionary measures, I think it may be claimed that the use of the trephine for the removal of points of irritation of the skull which are provocative of epilepsy is as legitimate as lithotomy for the relief of vesical irritation.

The removal of the irritating point of bone with the trephine will often cure the epileptic seizures permanently, without further attention, especially in those cases in which the peripheral irritation has originated and maintained the increased susceptibility of the reflex centers.

Dr. Dudley reported the case of young Goforth who, after he had been cured of epilepsy with the trephine, made many trips to New Orleans on flatboats and always walked back to his home. He never had a recurrence of his convulsions, notwithstanding the great exposure and fatigue to which he was subjected.

In 1862 a Confederate soldier received a fracture of the left parietal bone from a stone thrown by an infuriated farmer in western Virginia. He recovered from the immediate effects of the blow, but in five months afterward he was seized with epileptic convulsions which continued to recur for eight months, when he came to Nashville and entered the hospital for the purpose of submitting to an operation for relief. Upon examination the seat of the original wound exhibited a deep scar of the scalp and a well-marked depression of the bone. Constant pain and soreness were present at the point of injury, and the general health had become much impaired. The trephine was resorted to and the depressed bone removed. The patient never went to bed, but was well in a week. He returned to his home and spent a few months in comparative retirement, but soon becoming restless, organized a guerrilla band, and went into every species of excitement. He killed an old man in cold blood, was arrested by the Federal authorities, tried for murder, and sentenced to be hung. Before he was to be executed he effected his escape, and, singularly enough, went to his old haunts, organized another guerrilla band, committed all sorts of depredations on friend and foe, was at last surprised by a company of Federal cavalry, and after a desperate fight was killed. Yet during all the excitements incident to such a life he had no return of convulsions.

In some cases, appropriate and judicious treatment after the use of the trephine will effect a cure when the treatment without it would have been of no avail. It should not, however, be forgotten that one of the factors of the disease, viz., exalted susceptibility of the reflex centers, often continues in operation after the exciting point of irritation has been removed by the trephine, ready to be excited into activity by some other peripheral irritant. It is, therefore, the imperative duty of the surgeon to institute and maintain, after the operation of trephining for the relief of traumatic epilepsy, such a line of treatment as will in his judgement subdue the exaggerated excitability of the reflex centers and thus destroy the last link in the chain of morbid action.



POISONING BY CANNABIS INDICA,

TWO DRAMS OF HERRING'S ENGLISH EXTRACT INDIAN HEMP  
BEING TAKEN WITHOUT SUICIDAL INTENT.

BY A. B. COOK, A. M., M. D.

Mr. ———, age twenty-seven (an Englishman), height six feet; well developed; of good education; went in 1874 from England to India, and engaged as a clerk. He returned to England in 1878, and soon after came to the United States. While in India he was bitten by a species of asp called the yomali, from which he, for ten days, suffered acute pains and cramps. During this time opium, in ordinary doses, was prescribed, and from this small beginning the opium habit was contracted. He commenced with an aqueous solution of opium, said to be fifty per cent stronger than tr. opii; the solution was sometimes alternated with the tr. opii, the largest dose of the latter taken at one time being four ounces. At times he used, instead, gum opium, commencing with three grains; the dose was rapidly increased to sixty grains, which was taken just before eating supper. The largest quantity of the fresh gum opium taken in one day was three drams. He occasionally changed to sulphate of morphia, which he has now used exclusively for several years, this producing neither nausea nor a lock-up of the secretions, while its effects are both more pleasant and soothing. The largest dose of morphia he has taken at one time was twenty-five grains—his daily dose is twenty grains, always taken at one time, usually just before, but occasionally after supper, the effects of which last about twenty-four hours; or for about that length of time he feels, as he expresses it, his "normal level." The morphia has ceased to produce the agreeable sensations it formerly did; instead of the delightful and fascinating mental exaltation, it now causes more of a pure narcotic effect, but the desire to use it still clings to him. For two years after he

came to the United States he abandoned the use of morphia; but mental depression, the result of business misfortune, tempted him to resume the old habit.

Occasionally he omits morphia for two days to relieve his system and restore the secretions, and on two occasions, by way of experiment, has substituted extract of Indian hemp. About six months ago he took one and a half drams of the extract without any perceptible effect. He says the extract was old, dry, deteriorated, and inert.

On 22d of May, 1884, about six o'clock P. M., a few minutes before supper, he tried his second experiment by swallowing, at one dose, two drams of the extract of Indian hemp (a genuine article, as the result proved), which quantity he estimated was an equivalent to his daily dose of morphia—twenty grains. Before the evening meal was finished he began to feel a tingling sensation in the muscles, dizziness, some mental excitement accompanied with fearful foreboding—no pleasant hallucinations at any time. After supper he retired to his room and soon became wild, and, at times, almost frantic. About an hour after taking the hemp, he called a friend to get an emetic. At this time he says that he experienced the most horrible oppression, beyond the power of words to express. He imagined that a wing, with a spike or claw attachment, was placed in his ear, and that it was constantly being carried further and further into his brain, accompanied with a thousand pulsations and indescribable heat and constant vibrations throughout every nerve and fiber of the system, with a feeling of immediate dissolution. It was during this stage he was restrained by a friend from jumping out of a window.

About one and a half hours after taking the drug he was vomited with mustard, salt, and warm water, and then drank half a gallon of hot coffee, which was soon ejected; he then took an emetic dose of ipecac. I saw him about eight o'clock; he was still able to talk when addressed, was wild and delirious with short intervals of apparent mental lucidity, expression anxious, eyes injected, pupils dilated and insensible to light,



pulse 120, feeble, and easily compressed; respiration 10 to 12 per minute, shallow, labored, diaphragmatic; no chest expansion. When aroused he was at times belligerent, but when calmed by gentleness and kindness and asked why he wanted to fight, he said he thought an enemy was about to attack him. He had horrible feelings, thought he would certainly die, and that no treatment could reach his case. In the stages of excitement, he was unconscious of his actions and in every respect had when aroused the appearance of a violently insane man. I at once dispatched a messenger for carbonate of ammonia, whisky, and Harris's battery. In the meantime mustard and warm water were administered, and in ten minutes after twenty grains sulphate of zinc with copious draughts of warm water. Emesis was excited by titillating the fauces. In a few minutes a teaspoonful of mustard in half gallon of warm water was given as fast as he could be induced to swallow it, which was followed by copious vomiting free from any ingesta; after a few minutes' rest a half gallon of warm water was given, which was ejected clear, showing that the stomach was thoroughly evacuated and cleansed. After this the stomach did not reject any thing administered. The carbonate of ammonia was given in ten to fifteen-grain doses in mucilage, alternated with one ounce of good whisky, neither being given at regular intervals, but only as he was aroused by the battery and could be induced to swallow; but from half past eight P. M. to eight next morning he took three drams carbonate of ammonia and fully half a pint of whisky. During the night he drank considerable strong coffee. By half past nine P. M. he was completely under the narcotic influence of the hemp, pulse 130 to 140, feeble, thready, and at times scarcely perceptible; heart's action feeble, and giving out that peculiar metallic ringing sound frequently heard in approaching death; pupils dilated and insensible to light; respiration 10 to 12 per minute and abdominal. The thorax during respiration was as immovable as a fixed board. The battery had been commenced about nine P. M. in full intensity of current. One pole was applied to the spine, moving it slowly from the

base of the cranium to the lumbar spine, the other was applied alternately to the pectoral muscles, over the region of the heart, around the margin of the ribs and the cartilages of the ribs and sternum, and over the cervical portion of the phrenic nerves to stimulate all the respiratory muscles. Benefit was soon produced. The patient was partially aroused from his stupor, had lucid intervals, could articulate a few words and swallow; pulse fell to 100, was stronger and fuller; respiration was increased to 14 and 16 per minute, with moderate chest expansion; but when the battery was omitted for a short time he relapsed into profound stupor, etc. In fact, for about two hours, under the almost constant use of the battery, he was in a state of stupid insensibility, without any muscular action except that caused by the battery. Occasionally he could be aroused to consciousness by the combined use of the battery, violent palpation with the open hand on the sides of the thorax and back, kneading over the ribs with the knuckles, and the application of ice over the spine and heart, applied by rapidly pressing to the skin and raising it up to produce the shock without chilling. When the stupor persisted for an unusual length of time I passed one pole rapidly over the forehead, face, and ears, pressing the sponge to the skin and quickly raising it, this intermittent current seeming more potent than the continuous, the quick succession of shocks being a more powerful stimulant. After one P.M. the same effect would sometimes result from active palpation, or rubbing over the ribs with the knuckles.

One peculiarity observed in the case was the firm contraction and resistance of the orbicular muscle when I attempted to raise the upper eyelid to test the condition of the pupil; and when he could talk, he said this delicate manipulation caused severe pain; he dreaded any attempt to raise the lid, but under the stimulus of the battery he could open the eyes without any difficulty. While under the profound influence of the drug, his features were changed, his expression being idiotic. For about two hours, from eleven P.M. to one A.M., there was a profuse secretion from the schneiderian membrane, the salivary glands

and mucous membrane of the mouth; perspiration for the first three hours was at times free, but at no time profuse. The routine of treatment during the night was the battery used as heretofore stated, alternated as circumstances indicated with active palpation, kneading or rubbing over the ribs with the knuckles, ice, carbonate of ammonia, whisky, coffee, and water when desired. In the early part of the treatment attempts were made, by the aid of two assistants, to walk him over the floor; but it was a ludicrous walk; after three or four courses he fell limp and relaxed to the floor; the third time he fell as soon as raised from the bed.

After one o'clock P. M., under the stimulus of the battery, he could be more easily aroused and was able to articulate a few words, but soon relapsed into stupor when the treatment was suspended. Respiration and circulation were only sustained by the battery, the other treatment had no apparent effect on these functions. From three o'clock to six o'clock A. M. the improvement was marked; his features were more natural; he could be aroused by shaking or speaking in a sharp or decisive tone; about daylight the rattling of vehicles over the pavement would startle him. When I left him at six o'clock A. M., 23d, his pulse was 72 to 84, and respiration 18 per minute, temperature 98°; he then took coffee and milk punch. I saw him again at eight o'clock; he had slept most of the time, but was easily wakened, pulse reduced to 48 and respiration 12 per minute; the use of the battery for a short time restored the pulse to 78 and respiration to 16 per minute. He was then able to stand up, and he urinated copiously; his kidneys acted freely every two hours until two o'clock P. M., and during the day had two copious alvine evacuations. Used the battery at ten and twelve o'clock, on finding that the pulse had again declined to 50 and the respiration to 12 per minute; after this it was not necessary to repeat it. During the day he was ordered a milk punch, containing an ounce of whisky, every three hours—which he pronounced palatable—and coffee between times. At four o'clock and ten o'clock P. M. I found him restored to full consciousness.

He felt depressed, and thought a little morphia would make him feel better. The request was not granted. During the night he was restless and awoke frequently. He arose early on the morning of the 24th, took a portion of morphia, ate breakfast, and returned to his desk. On the 25th he said he had experienced no nausea, had a fair appetite, had no special soreness of the muscles, and had slept well during the night. Thus happily terminated this at one time cadaverous looking case.

From my experience in the treatment of poisoning from narcotics, if all the remedies recommended were placed before me and I was obliged to select and rely on one only, I would unhesitatingly choose the battery. I would rely on it with more confidence in a good result than all others combined; premising, however, the use of emetics or stomach-pump in cases seen before the posion had all been absorbed.

Since the patient's recovery he informs me that he had no conception of time; a few minutes seemed as many weeks or months; that, during the hours he was in a stupor and speechless, he was wholly unconscious, except at intervals, when aroused by the battery to partial consciousness, he had a vague conception that something had happened and that something was being done for him.

While in India he saw the natives drink an infusion of the hemp called bangh, which they drank for its stimulating effects. When under its influence they would doze and lie in a dreamy state, interrupted with convulsive starts and wild hallucinations, then relapse into a dreamy stupor, in which condition they were unfit for business. The hashish, as used by them, is a paste made of the active principle of the hemp combined with various aromatics and oils, as butter, honey, cloves, etc.; sometimes stramonium is added. On two or three occasions he used it in sufficient quantity to produce hallucinations. A large element in Hindoo society, he says, use opium in moderate quantity for its stimulating effects, as Americans use tobacco.

LOUISVILLE, KY.

## HYDRARTHROSIS OF THE KNEE-JOINT TREATED BY IODINE INJECTIONS.\*

BY DOUGLAS MORTON, A.M., M.D.

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CASE I. Mr. D., thirty-five years of age, was seen with my late associate, Dr. Cummins. Before he came under the charge of the latter, all, I suppose, of the means commonly used in the treatment of this disease had been intelligently and faithfully but fruitlessly applied over a long space of time. Aspiration had also been done twice, but without material benefit.

Dr. Cummins tapped with a small trocar and cannula and injected iodine on three occasions—I do not remember at what intervals—with a final result of complete cure and perfect use of the joint. During the continuance of the disease this man had suffered much in general health. He had grown thin, and his color suggested malignant disease. On recovery from the local affection he regained excellent health, which he still enjoys. Should it occur to any one that a cure, coming only after iodine injections had thrice been made, does not score very brilliantly for the treatment, he might properly be reminded that when, after a long course of blistering had been endured, and dressings fixed and unfixed had often been put on, and doses innumerable of mercury and of iodide of potash (for he was a syphilitic) had been swallowed, the man had grown worse rather than better, the time had undoubtedly come for a radical change in the treatment.

CASE II. Mr. P., a gentleman a little under fifty years old, was sent me by Mr. D. His knee had been giving him trouble for more than a year. He was, as far as I could learn, otherwise healthy, though he had much the same kind of unhealthy appearance as in Case I, and wore habitually an expression of pain. The condition of his knee had moreover compelled him

\*Read before the Medico-Chirurgical Society, May 16, 1884.

to give up his business, that of an insurance agent. I found the joint swollen from increase of the synovial fluid and tender on pressure. Walking gave considerable pain. He came with his mind made up for the same treatment that had cured his friend. Though his case had not been of long standing, and I felt quite sure that other measures had not been very thoroughly tried, I subjected him to the desired treatment. In his case a few drams of straw-colored fluid were removed by means of medium sized trocar and cannula, and two or three drams of compound tincture of iodine diluted with an equal quantity of water injected. In order to secure thorough application of the iodine over the whole of the inner surface of the diseased sac, I held my finger on the outer end of the cannula while I kneaded the joint thoroughly with my other hand. After this I let the iodine flow out. A back splint was then put on and the leg bandaged. The pain immediately following the operation was not very severe, but it afterward became sufficiently so to require hypodermic morphia for its relief. After keeping his bed two weeks my patient was able to get up and walk. Slight swelling and some tenderness continued some weeks later, and then gradually subsided, leaving the joint in full exercise of its function.

CASE III. Three years afterward Mr. P. returned with a second attack. He reported that in the interval he had had no trouble with his knee, and had been fully occupied in his business. Two or three months before he had ridden all day in the rain and became very wet. This experience was quickly followed by synovitis in the joint affected before. He did not delay long in coming to have the same treatment repeated. I did as he desired, though now the joint contained less fluid than before, and the other symptoms were less severe. This time, I did not give chloroform, and, at Dr. Cummins's suggestion, injected compound tincture of iodine undiluted. The same application of bandage and back splint was made as before. On this occasion he recovered more rapidly than formerly, and the last time I heard of him, over two years after the operation, his knee was well and normally mobile.



CASE IV. Mr. H., a delicate looking gentleman, about thirty-two years old, came under my charge in April, 1883. I was called to treat him for another affection, but his knee was giving him some trouble at the time, which I found afterward to be due to synovitis. This was treated by bandaging and the administration of iodide of potash. By midsummer his health had in all respects become sufficiently improved to enable him to travel. Some-time afterward he was caught in the rain while taking a long walk in Scotland, and remained wet a good part of the day. This was followed by an increase in the pain and swelling in his knee. When he returned, in October, I found him with a distended synovial sac, and suffering considerable pain. The former treatment was resumed, with addition afterward of systematic massage, which proved to be a highly satisfactory remedy. About midwinter these remedies seemed to lose their power of relief, and his joint became much swollen and very painful. I then advised tapping and injection of iodine, which was done in February. A *trocar* was used, as in the other cases, the point of puncture being, as in the other cases, about an inch upward and inward from the patella. About six ounces of brownish, somewhat turbid fluid was withdrawn, and a half ounce of compound tincture of iodine diluted with an equal quantity of water and containing half a grain of bichloride of mercury was injected. A portion of this was allowed to remain in the sac. The same dressing was applied as before. In two weeks the patient was up and able to resume his business. As in the other cases, no inflammation followed the injection. I saw the gentleman a few days ago, and found that he occasionally suffers some pain about the joint and that there is apparently slightly more synovial fluid than normal. The circumference of the knee, however, is on measurement only a quarter of an inch more than that of the sound one. The muscles of the leg, which had undergone great atrophy during the progress of the disease, are now fairly developed. There is very slight if any impairment of mobility. The patient feels, however, that the cure is not complete and urges a repetition of the operation,

and is unwilling that any other treatment be tried in its place.

These cases are all, I believe, that have ever been treated in this city by iodine injection.\* Their results correspond very closely with those of all the few cases that have been reported. Though a number of distinguished authorities consider the operation dangerous, as will be seen further on, none base this belief upon any experience of their own, or upon their personal knowledge of disastrous results in the practice of others.

I have taken pains to examine quite extensively the literature of the subject, and give below the views of a number of surgical authorities:

"I have not been so bold as to use injections for the permanent cure of this affection, convinced that the practice must be fraught with danger." (Gross.) "Tapping, iodine injections, etc., notwithstanding considerable testimony in their favor, are remedies of doubtful propriety." (Hamilton.) "This mode of treatment has been used with great success by several European surgeons; as, however, the plan is necessarily attended by some risk, it should not be employed except in very chronic cases which have resisted other modes of treatment. . . Even the simple use of the aspirator in these cases is attended with some danger, as shown by fatal results which have occurred in the hands of Dubruil, and of McDonnel, of Dublin." (Ashhurst.) "In very chronic and obstinate cases paracentesis of the joint by means of the aspirator has been employed with marvelous success. Sir J. Fayrer was one of the strongest advocates." (Bryant.) "But when these (the usual remedies) have failed . . . the joint must be injected with iodine. Care must be taken to exclude air . . . The case may be converted into one of acute abscess. But generally it does well, and the patient recovers with more or less stiffening." (Holmes.) "The results of this

\*I have since learned that the operation has been done by Dr. Stucky, of this city. In his case the disease was caused by an injury to the joint. Five weeks afterward a large quantity of fluid was withdrawn by aspiration, and three drams of iodine to the ounce of water injected. He recovered promptly with full use of the joint.



operation (injecting iodine) may be divided into four classes: (1) Complete cure with preservation of mobility; (2) Cure with certain amount of stiffness; (3) Complete failure; (4) Suppuration and injury to joint. The first and fourth classes are uncommon. The operation should not be done except after trial and failure of other remedies." (Panas, quoted in Holmes' Surgery.) "Dangerous both to life and limb, and can very rarely be justifiable." (Keetly.) "If these means fail, and the absence of false bodies and osteophytes has been verified, the joint may be injected with iodine." (Barwell.) "If these means fail, we have a very powerful method of cure at our command in the injection of the joint with tincture of iodine. This plan, a sufficiently bold one, has been much employed by Jobert, Velpeau, and Bonnet. . . . According to the statement of the French surgeons, it has in no case been followed by any serious consequences, but in several instances by a complete cure without ankylosis. . . . In one case of hydrarthrosis of the knee in an old man, in which I employed it, about six ounces of thin synovia were drawn off and a dram of strong tincture of iodine was injected. Slight inflammation ensued, and the disease, which was of two years' standing, was completely cured. The chief points that appear to require attention are that no inflammation be going on at the time, there being no tenderness or pain in moving the joint, the effusion being quite passive and of a very chronic character, and above all that no air be allowed to enter with the injected fluid." (Erichsen.) "Iodine injections in hydrarthrus are made by few surgeons. I have seen them made three times and have made two, always with good results. . . . Cases have also occurred where severe inflammations of the joint have resulted after these iodine injections, which have been most used in France because they are a French invention (of Bonnet and Velpeau); as so often happens in traumatic articular inflammations, the acute serous synovitis often becomes purulent. . . . It is always dangerous to joint and to life, and hence should be done as rarely as possible." (Billroth.)

Ten years ago, Dieulafoy had aspirated the knee-joint two

hundred times without a bad result. He considers it an eminently safe and satisfactory measure.

A few cases of iodine injection have been reported by other surgeons, who have expressed themselves very favorably as to the safety and efficiency of the operation, and no one that has tried it himself, as far as I have been able to learn, except the illustrious surgeon of Vienna, has regarded it otherwise. It may be observed, however, that Billroth, who has emphasized the danger of the operation, mentions that it had been "most used in France," while Erichsen distinctly states that the French surgeons assert it has in no case been followed by any serious consequences.

After a careful review of the statements of the various surgical authorities at my access, I am forced to suspect that the prejudice against the operation prevailing in the minds of most of them, consists of the too lingering remains of a belief long dominant in the professional mind, that the joints, and particularly the knee-joint, could not be surgically interfered with except at great risk. Now that we have learned, especially from McEwen and Ogsten, how very tolerant are the joints of the knife and the saw; and since we hold it to be so light a matter to throw iodine into the tunica vaginalis, it does appear anomalous that any one, on any supposed general principles, should consider it highly dangerous to inject iodine into the synovial sac of the knee-joint. Stress has been put upon the danger of admitting air. I can understand how importance should be attached to such an accident before the days of antiseptic surgery. But now I can not, and in my own operations air was admitted freely—so much so, that when the injected iodine was forced out by pressure a multitude of air-bubbles would come with it. I took pains to bring the iodine in contact with as much of the membrane as had been touched by air, and by this, I believe, its admission was rendered perfectly harmless, and therefore made no special effort to prevent it. Without the use of iodine or some other powerful disinfectant, I should regard admission of air into the joint dangerous, and believe it very probable that

the fatality occurring in the practice of McDonnell and Dubruil, mentioned by Ashhurst, was due to this cause.

It was said, I think, by Volkmann, in his address on anti-septic surgery before the International Congress in London, that results in surgery were no longer involved in the uncertainty of former times. Then the work of the surgeon was like that of the agriculturist, dependent in its issue upon conditions which he could neither anticipate nor control; but that, now, it is rather like that of the skilled mechanic, the conditions of whose work are largely subject to his control and from whom we may confidently *expect* results. I do not know that this is true to the full extent of the analogy, but this is certain, that the striking statement places surgery downrightly upon the basis of the inductive method, upon which alone substantial progress is possible.

In making a practical application of this method of reasoning to the question before us, I think we may safely conclude that two points are definitely and finally settled: first, air may be freely admitted into a synovial sac and no harm result; and, second, undiluted officinal compound tincture of iodine may be safely injected. Any doubt as to these particular points may be regarded as forever eliminated from the question, which is now narrowed down to conditions belonging to the patient's state of health and to his surroundings. Diseased kidneys or bad hygienic conditions rendering the result of any surgical operation doubtful may lead to disaster here. But these conditions may be ascertained by reasonably careful investigation; and, after failing to find any unfavorable condition, we may operate with the *expectation* of a good result.

Since writing the above, Mr. H., whose case was mentioned last, has had me to repeat the operation. By a circumstance that I considered unfortunate at the time, the synovial sac on this occasion was subjected to a peculiarly severe test. I used an aspirator, and, after removing about an ounce of fluid, injected three drams of compound tincture of iodine to which one dram of water had been added. This I tried to withdraw

through the needle after a few minutes, but, for some cause I could not make out, was unable to do so. Fearing to let it remain, I got the trocar and cannula I had used before from home, which caused a delay of fifteen minutes, penetrated the sac with this, and removed the iodine. The pain following this operation was very intense, and five quarter-grain doses of morphine had to be given at short intervals before comparative relief was obtained. In spite of this very severe treatment, since the eighth or tenth hour after the operation, the patient has suffered very little, and is now, on the seventh day, entirely comfortable and his knee very little swollen or tender. As in the other cases, air found its way freely into the sac. I was about to forget to state that there was slight fever ( $101.5^{\circ}$  maximum) for two days.

LOUISVILLE, KY.

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### FREE INCISION IN EMPYEMA.

BY N. J. OUTTEN, M. D.

Charles Overby, of Hickman, Ky., aged seventeen, had been sick a month when I first saw him professionally on December 20, 1883. His case had been pronounced pneumonia by the physician who treated him. His symptoms were, emaciation, sweating, pulsations, about one hundred per minute, temperature a little above normal, a troublesome cough which brought up a slightly greenish sputa resembling the expectoration of bronchitis, flatness upon percussing over left lung, in which no respiration could be heard, respiration in right lung bronchial, heart heard and felt pulsate far over to right side. My diagnosis was at once empyema.

Having some time since become convinced that free incision with free and unintermitting drainage was the treatment which had given by far the best recorded results, I concluded to put it in practice as soon as conditions became favorable. I considered them such by January 22d the following, when I operated by

making an incision in the sixth intercostal space, about midway between the spine and sternum, two and a half inches in length on the outside and about one and a half in the pleura, patient being under the influence of chloroform, which acted well. Fifty-six ounces of a slightly greenish-yellow puruloid fluid escaped. The wound remained open without any assistance sufficiently to allow the escape of the fluid for about two weeks, when the discharge nearly ceased from closure. A drainage-tube was then introduced, made of a piece of No. 10 silver catheter, held in place by adhesive plaster. It answered the purpose well. The discharge continued, the quantity gradually diminishing up to April 8th, two and a half months, by which time it had almost ceased. The tube was then taken out and the opening allowed to close.

No antiseptic precautions, *so-called*, were resorted to. The skin, however, was well cleansed with soap and water over the site of intended operation and cleanliness strictly observed afterward. No syringing out the cavity was resorted to; no smell whatever was observed at any time in the recent discharge. No untoward symptoms followed the operation, beyond a little rise of temperature and a corresponding acceleration of pulse which were of short duration. His appetite soon became good, and he steadily improved in flesh and strength up to the present. He called at my office a few days ago, when I found his weight to be within one and a half pounds of what it was a few weeks before his sickness, and when he considered himself in perfect health.

In 1865 I operated on W. C. Metcalfe, a druggist of Caseyville, Ky. I regret that I have no notes of his case; but remember that I operated and treated him upon the plan of that day, let the fluid discharge and then suffered the wound to close until the re-accumulation made it necessary to open again. My patient died within a year, seemingly worn out by hectic and the continuous drain upon his system. I am satisfied that his condition was as favorable as Overby's, and that if he had been treated upon the same plan would likely have recovered.

HICKMAN, KY.

## Reviews.

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**Hand-book of Geographical and Historical Pathology.** By DR. AUGUST HIRSCH, Professor of Medicine in the University of Berlin. Vol. I. Acute Infective Diseases. Translated from the Second German edition by CHARLES CHREIGHTON, M. D. London: The New Sydenham Society. 1883.

More than thirty years ago Dr. Hirsch broke ground in the then new field of medical geography. Since his first publication much knowledge has accrued by the labors of French, English, and American physicians, concerning parts of the world remote from the civilized states of Europe.

The material has grown to a prodigious heap, enough to strike despair to any editor less patient and enthusiastic than Dr. Hirsch. His plan involved a new treatment of the subject, especially an enlargement on the sides of comparative pathology and etiology. In carrying it out he has made available for every reader a lot of interesting matter buried hitherto in statistical reports and transactions of societies of all nations.

It may not be generally known that the first published work on the historical side in our language was the "Brief History of Epidemic and Pestilential Diseases," written by Noah Webster, of spelling-book and dictionary fame. Our author acknowledges some debt to Webster in compiling the present volume. It is the debt that growing communities owe to the pioneers that clear the ground for future occupancy. The aim had in view by Dr. Hirsch is "to exhibit the particular circumstances under which diseases have occurred within the several periods of time and at various parts of the globe; to show whether they have been subject to any differences, and of what kind, according to the time and place; what casual relations exist between the factors of disease acting at particular times and in particular



places, on the one hand, and the character of the diseases that have actually occurred on the other; and finally to show how those diseases are related to one another in their prevalence through time and through space—a task, the high importance of which for the doctrine of special diseases, for etiology and hygiene, can not well be misunderstood or called in question.”

A task so huge, it may be added, no one but a German professor would undertake, and few but Dr. Hirsch could accomplish as he has done it in the book before us. At first glance it has the look of a bibliographical and geographical index; but a closer view shows that behind the mists of detailed facts great mountain ranges of truths can be discerned. These principles run through each chapter, like a red string, holding the compilations together. They are cautiously stated and enforce conclusions of judicial fairness; conclusions which must have weight in determining the causes and external relations of the acute infective diseases.

It is a valuable book of reference to every medical scholar who does not seek to confirm his mental vision to the narrowest limits.

J. W. H.

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**Insanity:** Its Classification, Diagnosis, and Treatment. A manual for Students and Practitioners of Medicine. By E. C. SPITZKA, M. D., Professor of Medical Jurisprudence at the New York Post-Graduate School. 1 vol., 8vo, pp. 415. New York: Bermingham & Co. 1883.

Just as “great oaks from little acorns grow,” so this work, from the modest dimensions of an essay, has expanded into its present proportions. The requests and suggestions of pupils and professional friends appear to have furnished the intuitive force requisite to effect this transformation.

The book is divided into three parts. The first considers the general Character and Classification of Insanity. The Special Forms of Insanity are treated of in the second part, and the third part is devoted to Insanity in its Practical Relations.

The author's aim seems to have been to produce a treatise which, without being so exhaustive as to tire and bewilder the beginner and the general medical reader, shall direct attention to some of the salient points of psychiatry, etc. The conclusion follows from this that the rather numerous works on this subject have neglected some *points* in psychiatry of sufficient importance to require elucidation, and these the author has attempted to supply.

The work, in spite of glaring and multitudinous grammatical errors, is of real value, especially where the author's own observations are related.

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**The Field of Disease.** A Book of Preventive Medicine. By BENJAMIN WARD RICHARDSON, M. D., LL. D., F. R. S. Fellow of the Royal College of Physicians and Honorary Physician to the Royal Literary Fund. 1 vol., 8vo, pp. 737. Philadelphia: Henry C. Lea's Son & Co. 1884.

The object of this bulky volume appears to have been to furnish "those members of the intelligent reading public who, without desiring to trench upon the province of the physician and surgeon or to dabble in the science and art of medical treatment of disease, wish to know the leading facts about the "diseases of the human family, their causes and prevention." There are doubtless many who will deny that this is a desirable object, and these will declare that those for whom it is intended are not likely to benefit by it, and that those who have the knowledge to appreciate the book are the very persons who do not need it. The American publishers' preface contains the remark that "they have had no hesitation in laying the book before the profession, being advised that it contains much with which every physician should be familiar." May it not also be said that the contents are such as every well-informed and competent physician *is* familiar with?

However, the fame of Dr. Richardson as a writer and medi-

cal philosopher is so great that every thing he deems worthy of laying before the great medical public is certain to be read with interest and judged with fairness and in a kindly spirit. It is therefore idle to consider the object for which the book was written. Rather let the pages be scanned to note how the work has been performed.

The plan of it embraces, as indicated by the title, the whole field of disease. It is vast in its scope, yet the arrangement is so admirable and the author handles his numerous and varied subjects with such power and skill that he gets over the ground unceasing and unceasing, commanding in an unusual degree the attention and interest of the reader. His style is simple, always clear, often vigorous. He never descends to the use of needless technicalities, never makes rash and extravagant statements, and as a rule keeps his reader out of those entangled and entangling situations where only a clear-headed and well-informed physician may safely tread and where the uninstructed or half-instructed layman necessarily falls into inextricable confusion. The province of therapeutics is touched upon only in its preventive relations, and the book is really just what it claims to be, and yet something much better. It will be read and appreciated by physicians wherever the English language is spoken, and can not but add new luster to Dr. Richardson's already brilliant reputation as a teacher, author, and philosopher.

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**Elements of Pharmacy, Materia Medica, and Therapeutics.**

By WM. WHITLA, M. D. (Q. U. I.), Physician to the Belfast Royal Hospital, Consulting Physician to the Ulster Hospital for the Diseases of Women and Children, etc. Second edition. 1 volume, pp. 602. London: Henry Renshaw, 356 Strand. 1884.

This work, the second edition of which has recently appeared—its contents are arranged in six parts, viz: Part I treats of Extemporaneous Pharmacy; Part II, Materia Medica; Part III, The Therapeutical Action of Drugs; Part IV, New

Remedies; Part V, The Method by which Medicines are Introduced into the System; Part VI, Pharmacopeial Reaction of Tests, and Tables of Weights and Measures. The author has given a very handy volume, replete with practical and useful information; and having once made its acquaintance, one is ever afterward desirous of keeping it within easy reach for frequent reference and consultation. It can not be compared with the more ponderous and pretentious works, such as those of Stillé, Wood, and Bartholow, for it is entirely different in scope; while unlikely to supplant either of these it will fill a place of its own, and will doubtless find, as it deserves, a very large circulation.

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**Hooper's Physician's Vade Mecum.** A Manual of the Principles and Practice of Physic, with an outline of General Pathology, Therapeutics and Hygiene. Tenth edition. Revised by WM. AUGUSTUS GUY, M. B., Cantab., F. R. S., Fellow of the Royal College of Physicians, late Professor of Forensic Medicine and Hygiene, King's College, London, Consulting Physician to King's College Hospital, etc., and JOHN HARLEY, M. D., London, F. R. S., Fellow of the Royal College of Physicians, Hon. Fellow of King's College, and late Physician to the London Fever Hospital, Lecturer on General Anatomy and Physiology etc., and Physician to St. Thomas's Hospital. Vol. 1., 8vo. New York: Wm. Wood & Co. 1884.

This work was first published in 1823, but has since been many times rewritten to adapt it to the changes and improvements which have occurred in medicine during the last sixty-one years. The book is thus practically a new one, for necessarily very little of its original contents remain in the present edition.

The wisdom of the publishers in dishing out such rather stale literature to the profession is quite doubtful. Those who subscribe to the series of "Standard Authors" would generally and naturally expect original and recent works. Still the book has held its ground for a long time, and certainly is not without practical value.

**A Manual of Medical Jurisprudence, with Special Reference to Diseases and Injuries of the Nervous System.** By ALLAN McLANE HAMILTON. 1 vol., 8vo, pp. 386.

This thoroughly practical volume is a timely and useful contribution to the literature of the department of science with which it deals. The preface is a model for brevity and modesty, and gives but an inadequate idea of the excellence of the work. Even the index conveys a very poor conception of the useful material the author has compressed within the narrow limits of the text. Only those conditions are considered which in these present times often form the basis of litigation. The book is intended as a guide to physicians and lawyers. The contents are arranged in eight chapters, as follows: Chapter I, Insanity; II, Insanity in its Medico-legal Relations; III, Hysteroid Conditions and Feign Diseases; IV, Epilepsy; V, Alcoholism; VI, Suicide; VII, Cranial Injuries; VIII, Spinal Injuries.

The author treats of the medico-legal relations of mental diseases and injuries to the nervous centers in a clear and practical way which shows that he is master of his subject and that he appreciates the sort of book that is needed, while the manner in which he has acquitted himself amply demonstrates his admirable qualifications for the performance of his task.

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**Insanity Considered in its Medico-legal Relations.** By T. R. BUCKHAM, A. M., M. D. 1 vol., 8 vo, pp. 265. Philadelphia: J. B. Lippincott & Co. 1884.

This book is evidently written for a purpose beyond merely gratifying a taste for literary labor and fondness for the notoriety of authorship. This purpose is apparent throughout. The author desires to point out, first the uncertainty of verdicts in trials for insanity, second the causes of this deplorable state of things, and lastly the means of removing this difficulty. This

he hopes to accomplish by the aid of the *physical-media* theory. Whatever objections may be urged against it, the author deserves credit for the honesty, fearlessness, and spirit with which he has discussed it. Much interesting information has been embodied in the work, and it can not fail to prove desirable to the literature of psychological medicine.

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**Elements of Human Physiology.** By HENRY POWERS, M. B., London. Illustrated with forty-seven engravings, pp. 389. Philadelphia: Henry C. Lea's Son & Co. 1884.

This little volume contains a brief and clear exposition of the subject of which it treats. It is one of a series which has already been noticed in these pages, and it maintains the character for excellence which has marked its predecessors. No great amount of original matter can be found in its pages, but its small bulk and lucid style, and also the fact that it deals with physiology pure and simple, give it a sufficiently marked individuality. While it possesses merits which must secure for it a handsome circulation, it can never take the place of such master works as Dalton and Flint.

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**A Year-book of Therapeutics for 1883.** Edited by ROYAL W. AMIDON, M. D. 1 vol., 8vo, pp. 250. New York: G. P. Putnam's Sons. 1884.

The editor has compiled a very good and useful collection of therapeutic novelties of the past year. They appear to have been in the main gleaned from American and British journals containing abstracts and notices of articles previously published in continental European publications. Very little notice is taken of any thing American; nevertheless, the book is a useful one, is well printed on good paper, and it is a quite seemly volume.



## **Clinic of the Month.**

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A CASE OF MYOCARDITIS AND MYOMALACIA CORDIS.\*—The patient, a male, aged sixty-seven. During the last two years of his life he had several times sought medical advice for light catarrh of lungs and bowels, but he never complained to his physician of any symptoms indicating the existence of heart disease. It appears, however, that he had been aware for some time of disturbed heart's action, and that he had been advised by a former physician to make use of gymnastics. He had several times during the last few weeks complained to his family of sudden vertigo, which lasted only momentarily, but otherwise he appeared well until the night of the 25th of December, 1883, when he was awakened from his sleep by a sense of great oppression in the chest.

When the physician visited him the following day, this feeling still continued, though less severe than during the night. On physical exploration nothing abnormal could be found about the lungs. The heart's impulse could not be detected; the area of cardiac dullness was not increased; the heart sounds were not clear but feeble and there were no murmurs; the heart's action was not rapid, but weak and somewhat irregular. He soon felt considerably improved, so that he could sit up in his apartments, and occupied himself a good deal of the day in writing and drawing, though his strength did not return. This period of improvement lasted eight days, when another paroxysm occurred, considerably more severe than the first. An unendurable sensation of compression and suffocation extended round the thorax immediately above the nipples. It seemed to him impossible to lie down, but on attempting to rise he nearly lost consciousness and fell back upon the bed. The heart's

\*Translated by John A. Ochterlony, A. M., M. D., Professor, etc.

action and the pulse became extremely feeble and irregular, the extremities cold, but in spite of this unpromising state of things the patient rallied again, and the next day he was comparatively free from pain, the action of the heart improving somewhat, but remaining irregular. Both the patient and the family were informed of the great risk incurred by him if he deviated from the horizontal position, but in spite of this he disregarded the advice. After having passed a tranquil night he felt strong, sat up in bed and signed his name to a number of papers and continued this occupation about fifteen minutes. He experienced nothing unusual during this time, but was merry and spoke playfully; but a little while after he had lain down it was noticed that his breathing was irregular and rattling, and in a few minutes he was dead.

At the autopsy the pericardium was found to contain a somewhat larger quantity than normal of a clear transparent fluid. The heart was covered with fat; there was interstitial myocarditis, and on opening it no thrombus or embolus was found in pulmonary artery; but in the right auricle were recent thrombi, originating ante-mortem, whose center had not yet reached any degree of disintegration, and similar ones existed in the right ventricle, especially toward the apex. The muscular structure of the right side of the heart had a diffuse grayish-yellow tint; endocardium healthy. The walls of the left ventricle exhibited highly marked alterations. The general thickness was not specially augmented; it measured at the base fourteen mm., midway between the base and the apex, thirteen mm., and at the apex ten mm.

The walls presented a very different appearance at various points, their structure was in general much more friable than normal and of a uniform, grayish-yellow appearance indicative of diffuse fatty degeneration. In various places, especially at the insertion of the muscoli-papillares, and also in the muscoli-papillares, were large spaces of white, shining, tendonous appearance, which at several places surrounded the whole ventricular wall. In several different places were foci of another and

altogether different appearance. The largest of these was found about midway between the apex and base on the posterior wall and occupied a surface of about two cubic cm. At this point the heart structure was of greatly softened consistence; indeed it was as much so as occurs in advanced fatty degeneration of the liver. Section exhibited an irregular surface with small prominences of varying form, some being round, others oblong, etc. Between the prominences, whose color was grayish-yellow and opaque as the general structures of the heart, were depressions of a reddish-gray, semi-transparent, jelly-like color. There was no bleeding any where in these places. Similar places of exceedingly soft consistence, but much smaller in extent, were found dispersed in the vicinity of the larger foci.

The endocardium over the mitral valve was slightly thickened, and the aortic valves were also here and there somewhat thickened.

The principal tissue changes occurred in the papillary muscles, and especially over parts in the muscular structure which had undergone connective tissue transformation. Here the endocardium was greatly thickened, white and firm and strongly adherent to the subjacent altered muscular tissue. The intima exhibited a slight degree of atheromatous degeneration. The left side was entirely free from thrombi.

On slitting the coronary arteries these were found in a state of atheromatous degeneration; though not in a high degree in the left. In the right, however, there was a mass of coagulated blood which occluded the orifice and projected from two to three mm. into the lumen of aorta. It was rounded, of yellowish-white color, of quite firm consistence and firmly attached to the vascular wall. On slitting this artery it was found greatly altered; it contained a thrombus extending ten cm. from the orifice and quite adherent to the wall. This mass consisted of reddish-gray, toward the center almost red, clot. The artery was greatly dilated beyond first eight cm. of its course so that its diameter measured six mm. The walls over an extent of four to six cm. from the origin of the artery were in a high degree

atheromatous, covered with bony plates, thickened, and its inner surface uneven and rough every where. The thrombus extended some distance beyond that part of the artery which was so much altered, and it was only after the vessel had reached the posterior aspect of the heart that its lumen was free.

In its course down to the foci already described the artery was the seat of only slight atheromatous changes. The autopsy presented no other appearances worthy of note. The lungs and kidneys were healthy. Microscopical examination revealed that the muscular structure in places, described as grayish-white with a shade of yellow, were in a high degree of fatty degeneration; the place noted as white and of tendonous appearance was found a firm fibrous mass of connective tissue. Section of the foci of softening, already mentioned, showed islets of muscular tissue in a state of fatty degeneration and disintegration, surrounded by loose connective tissue, with here and there nuclei and lymphoid corpuscles and fat granules. Most of these were small, but many presented the same diameter as those in the muscular fiber of the heart. The connection of these pathological changes above described is somewhat difficult to trace. Some of them, in relation with marked thickening of the endocardium, must be regarded as the result of an endocarditis extending into deeper structures. The foci of softening may, perhaps, without hesitancy be ascribed to the marked degeneration of the wall of the right coronary artery, their location certainly speaks in favor of this view. The microscopical investigation showed that they resulted from fatty degeneration with disintegration of muscular fibers and partial resorption of the fatty degenerated mass; and this pathological process coincides, according to experience, most frequently with atheromatous degeneration of the coronary artery; its favorite seat also is on the posterior wall of the left ventricle. It is plain that the final cause of death, the obstructing thrombus, arose in part from the condition of the coronary artery and in part from the greatly enfeebled action of the heart; and it is easily perceived that under such circumstances quite slight impediments to the heart's

action and disturbances of the circulation might determine its formation. (Drs. Ekecratitz and Wallin, *Hygiea*, March and April, 1884.)

HOW TO SHRINK HYPERTROPHIED TONSILS BY CAUSTIC APPLICATIONS.—Prof. Chisolm, of the University of Maryland, begins a paper on the above subject by saying: I unhesitatingly prefer excision of the enlarged gland in every case in which the patient will permit the use of the knife. It is by far the quickest, surest, and best means of securing permanent and complete relief.

In my personal experience of tonsil-cutting (and I have taken off a great many), I have never seen any trouble from hemorrhage. In fact, I have never seen any bleeding which gave me any anxiety whatever. Cases have been reported in which very alarming hemorrhage had taken place, but this must ever be a rare accident at the hands of a skillful and cautious operator, who restricts the application of the tonsillitome to simple hypertrophies of the tonsil, and is careful how he cuts the more complex or malignant changes in the gland.

But suppose that a patient positively refuses to permit any cutting instrument to be used, what are we then to do? Such cases occur very frequently in the experience of every physician. Timid parents will not accept for their suffering children the quick, certain, and permanent relief which excision offers. At the same time they will request that treatment be instituted to relieve their children from the exposure to suffocative attacks and constant annoyances in breathing, eating, and speaking, to which these little sufferers are forced to submit. Large lumps in the throat, at all times a discomfort, swelling up under irritation till they touch at the uvula and threaten to cut off communication with the chest and abdomen, must be a serious disturbing influence in sustaining health. Undeveloped bodies with pallid faces must be the result of this diseased state of the throat, nor is this condition of short duration. Chronic hypertrophy of the tonsil may show itself at a very early age of childhood, and usually continues up to and even after puberty.

Without judicious treatment this diseased condition of the throat will continue at least during the growing period of the individual, and may possibly entail upon such patients defective hearing in addition to other annoyances. Nature, unaided, will do but little to bring about the desired relief of causing absorption of these hypertrophied glands. A general medical treatment may do much to sustain a comparatively healthy state. Proper hygiene, fresh air, warm clothing, protection from exposure, nutritious food, with general attention to the digestive apparatus, when aided by the internal administration of cod-liver oil and iron, will do much toward improving the throat. When such treatment is instituted early enough, it will fortunately often prove successful.

I have seen no benefit from the administration of so-called absorbents, or remedies which, when taken into the circulation, are supposed to act more immediately upon the glandular system, viz., iodide of potash, iodide of ammonium, muriate of ammonia, guaiacum, etc. These, on the contrary, when given for a length of time often disturb the digestion, and are so extremely uncertain in their shrinking action as to be of very questionable utility in removing tonsillar hypertrophies.

Nearly as much can be said of the negative results of astringents locally applied to the surface of hypertrophied tonsils to cause absorption. Such as painting the inner surface of the throat with iodine preparations, tincture of iron, glycerole of tannin, solutions of nitrate of silver, or the frequent gargling with solutions of alum, tannin, borax, muriate of ammonia, chlorate of potash, etc. However valuable such local applications may have proved themselves in many throat affections, they are little more than placebos when used for shrinking hypertrophies of the tonsil. We have all seen cases in which some of these remedies have been assiduously applied for months with no material benefit in the permanent reduction of the throat lumps. These continue to annoy as if no local treatment had been instituted.

The local application of destructive agents alone promises



no satisfactory reduction. These are usually applied to the surface of the tonsil. They are often violent in their action, difficult to limit to the tonsil proper, and by excoriating the mucous surface to which they come in contact usually make a very painful sore throat for the patient. These destructive applications require frequent repetition, at intervals of one or two weeks, until the enlarged gland is eaten away, as it were, by piece-meal. It is not surprising that patients suffering with hypertrophied tonsils, especially the young children, who are in such a large majority, shrink from this painful ordeal.

When the knife is not used, we must look to these caustics to effect the removal of enlarged tonsils; but there seems to me a much better method of applying these than to the exposed surface of the throat, where the good they accomplish is accompanied by so much positive discomfort. If we will utilize our knowledge of the anatomy of the tonsil, much light can be thrown upon this important subject, and a comparatively painless solution of these stubborn throat lumps can be obtained.

In the distribution of sensitive nerves, the exposed surfaces receive the larger supply according to rule, and the interior surfaces of the follicles are to a certain extent deficient in common sensation. Here, then, we have in these deep pits of the tonsils a much more extended, less sensitive, and more easily influenced surface, to which destructive agents can be readily applied without annoying the throat proper. Caustics, if buried in the substance of the tonsil, will soon give evidence of the much desired shrinkage.

Among the various caustics for local use in causing shrinkage of tonsillar hypertrophies, I have found the chloride of zinc the most available and the least annoying to the patient. I employ it in the following manner: A wire, the size of a fine knitting needle, is roughened for a half inch from one end, so that it may hold a fiber of absorbent cotton twisted upon it. Dip this into a saturated solution of chloride of zinc, and thrust it to the very bottom of the crypt, and keep it there several seconds. When withdrawn the whitened orifice marks the cau-

terization. By renewing the cotton for each follicle, several may be thoroughly cauterized at the same sitting, without causing any annoying irritation to the throat. A very few applications will cause the gland to shrink, as will be seen one week after the destructive cauterization has been made to the interior of the follicles. (Virginia Medical Monthly.)

INSANITY IN A CHILD.—Berner reports the case of a child six years and ten months old, who was attacked with melancholia. The patient was desirous of solitude, very restless and unquiet in slumber, and had hallucinations of sight and hearing. There were at times paroxysms of markedly painful depression. Hereditary history was uncertain, and the patient recovered in a month.

EXTENSIVE TREPHINING OF THE SKULL.—Dr. Nancrede, of Philadelphia, recently offered at the Pathological Society of Philadelphia, specimens from a case of skull injury of more than ordinary interest. (Cincinnati Lancet and Clinic.) The specimens, consisting of nearly the whole right squamous plate of the temporal bone, the inferior angle of the parietal, and a portion of the frontal—in other words, the anterior two thirds of the temporal fossa, from the orbital plate nearly to the temporal ridge, and from the external angular process of the frontal to a line posterior to the external auditory meatus—were removed by the speaker from a man who had been struck by an iron lever which caught his head between it and a large beam. Though the depressed area must have been fully an inch deep, yet he walked into the surgical dispensary of the Episcopal Hospital presenting apparently neither motor nor sensory disturbances, pupils and tongue normal. He was at once sent up to the male surgical ward and the speaker proceeded to trephine him, cut away the overhanging shelf of sound bone with the “rougeur,” and thus elevate and remove over a dozen fragments of bone. The dura mater seemed uninjured. As the specimens show, the middle meningeal artery must have been torn, and fortunately twisted in removing the fragments, as it was

completely surrounded by a bony canal. One branch of the meninges was tied with fine catgut ligature and the wound, as well as a deep-scalp cut on the opposite side, was dressed with mercurial bichloride. He has done well since.

TREPHINING FOR EPILEPSY WITH DELUSIONS.—Frank Warner, M. D., of Columbus, Ohio, reports the following case in the *Cincinnati Lancet and Clinic*: Four years before his application for treatment for epilepsy John W. had fallen from a scaffold, and, as he struck below, the occipital bone was penetrated by a nail which was protruding through a board. A short time afterward he became affected with epilepsy, pain in the head over the seat of the fracture, which was just to left of the mesial line, in the occipital bone and an inch below the articulation of this bone with the parietal, and after a while developed peculiar nervous symptoms, becoming irritable, easily excited, and manifested occasional delusions. At first symptoms were mild, the epileptic attacks occurring once a month, and then, perhaps, one slight convulsion ending the manifestation of the disorder. In the first two years little change was manifested, but gradually the epileptic seizures became more frequent, and instead of one or two convulsions ending the attack, three to six would follow in quick succession.

Occasional delusions took possession of the patient and he imagined persons designing evil things against him, frequently prepared to protect himself by carrying dangerous implements.

Trephining was done over the point where the nail had entered the skull, and three buttons removed, the reason for taking out more than one being that fragments from the inner table could be felt, which we thought proper to remove.

Pressure on the brain from the depressed bone was very slight, but the ragged edges were sufficient to keep up a continuous local meningeal inflammation.

The patient made a rapid recovery, and for two or three weeks none of the old symptoms presented themselves, then a number of convulsions followed, with the characteristic delu-

sions. These, however, soon passed away, and he made a rapid, complete, and permanent cure, four years having now passed since the operation, and the patient continues in perfect mental and physical health.

MORAL INSANITY IN CHILDREN.—Dr. J. Manley (*Journal of Mental Science*), coinciding in the opinion previously expressed by Dr. Savage, that many so-called sound children are nothing more or less than children who are morally of unsound mind, reports the cases of two children, four and six and a half years old, intellectually bright, yet given to wild, malicious mischief, despite good home surroundings and careful bringing up.

[Quite recently I was consulted regarding a case of acquired mental derangement, occurring in a boy nearly ten years of age, which was believed to be due to fright consequent on accidental immersion. For the past eight months the boy has been progressively losing mental power, and lately he has become excitable, extremely passionate, and filthy in his habits—using, when aroused, foul language which he heard as a child; he is quite incoherent, and the volitional and emotional faculties are deeply affected. The prognosis in such a case is, I believe, very unfavorable.—*Reporter*.]

MENTAL DISEASE IN CHILDREN.—Dr. Martin Cohn, in a paper in the *Berlin Archiv f. Kinderheilk*, says that the statistics of Hagen and Koch have shown that mental diseases are more common among children than was formerly supposed. An explanation of this may be found in the fact that only lately the diseases of childhood have been more thoroughly studied, and also that among children lighter psychical disturbances which heretofore have not attracted the attention of statisticians are quite frequent. The disposition to mental disease, it is true, is small among children, yet at no other time of life is the equilibrium of the mind more easily disturbed by trivial causes. In the etiology we must distinguish between the predisposing and the accidental causes. Among the former the chief cause is

hereditary tendency; while among the latter we may name fright, fear, education, somatic causes—such as deformity of the brain case, injuries to the head, acute febrile diseases, chronic constitutional diseases, such as tuberculosis, syphilis, etc., reflex irritation, and many others.

RELATION OF DISEASES OF WOMEN TO INSANITY.—Dr. Ripping considers the important clinical question of the relation of the diseases of the sexual organs in women to mental alienation. While he admits that changes in the uterus and its appendages, whether physiological or pathological, have an effect upon the mental susceptibilities of women, he is doubtful whether this effect is profound enough to become potent cause of insanity. He is rather disposed to place such affections in the second or third line of causes as *adjuvantia*. The uterine diseases and the mental disturbance are sometimes the result of a common cause. "I have never observed," writes Dr. Ripping, "a single case in which the insanity was a pure reflex neurosis of disease of the genital organs." If in some patients this seemed to be probable, it was found on more careful examination that there were other circumstances which gave an easy and enforced explanation of the mental derangement. It is only after uterine disorders which, from their severity, implicate the whole organism or lower the strength, as in continual bleedings, that insanity can be held to supervene as a result. Dr. Ripping finds that affections of the sexual organs after the puerperal condition is passed do not hinder recovery from insanity. He protests against the remark of Skene that the insane are less affected than the sane by vaginal examinations. On the contrary, he says that in recent cases of insanity such examinations sometimes cause injury to the course of the mental symptoms which are well-nigh irreparable. He has a dislike to examinations under anesthetics, and observes that the effects of chloroform on the nervous system are somewhat suspicious in patients afflicted with recent insanity. There is a great variance of opinion about the frequency of diseases of the genital organs in insane women. Verga places it

as low as 6 per cent, L. Meyer 9 per cent, Landouzy makes it 50, and Hergt as high as 66 per cent. Dr. Danillo, of St. Petersburg, has recently examined the question, and of 200 insane patients he found diseases of genital organs in 80 per cent; and of 140 women who still menstruated he found  $120=84$  per cent who had some affection of the uterus or its appendages. In 60 who did not menstruate he found only 18-28 per cent so affected. Dr. Danillo therefore comes to conclusions quite opposed to those of Dr. Ripping. (*Journal of Mental Science.*)

LACING UP WOUNDS.—Dr. A. B. Frazee, of Elbridge, N. Y., referring to the subject of traction sutures (*Medical Record*), says: "I take two pieces of strong adhesive plaster (Meade's plaster is the best I know of for my purpose) as long as the cut to be drawn together, and as broad as circumstances will allow, and, after folding back the edges one fourth inch that are to be next the cut, I fasten ordinary dress-hooks, which are sold at the dry-goods stores, along the folded edges at regular intervals. Then, after drying the skin, I apply the plasters each side of the wound, a little distance from the edges, with the hooks opposite one another, and with a strong thread lace up the wound like a glove. The advantages of this are: (1) The thread can be loosened or tightened from day to day, thus keeping the edges in apposition while allowing for swelling, etc. (2) The wound is accessible and can be cleaned and dressed very easily. (3) In many cases sutures will not be needed at all, thus avoiding the irritation they cause and the scar. (4) If sutures are used to insure more perfect apposition, the strain is taken off them and they will irritate less in consequence. (5) The plasters will hold much longer than sutures, will pull more evenly and bear greater tension without yielding. The hooks can be sewed to the plaster, but in most cases a more convenient way of fastening them on is the following: Prepare the hooks by turning the ends of the wire out so as to be at right angles with the hook. Then, before tearing the cloth off the plaster, fold it back half an inch and with a penknife cut through the two thicknesses par-



allel with the edge where the hooks are to be, then tear off the facing-cloth and pass the hooks through the slits. The cutting weakens the plaster somewhat, and if much traction is to be made it is better to sew the hooks on."

**STERILITY RESULTING FROM ALTERED VAGINAL SECRETION.**—Dr. Jung, Vienna, reports a case of sterility which was caused by abnormal mucous secretion of the vagina. The mucus, as observed three or four hours after coitus, exercised a deleterious influence upon the spermatozoa, which showed no sign of motion. Astringent injections of the vagina and thigh baths were employed with success, and within three months conception took place, after she had remained childless for fourteen years of her married life. Her sterility had previously been treated unsuccessfully with cauterizations of the cervix with nitrate of silver, and bilateral incision of the os. (*Medical and Surgical Journal.*)

**ICTERUS DURING PREGNANCY.**—At a recent meeting of the Académie de Médecine, Dr. Queirel mentioned three varieties of jaundice: (1) That occurring at the beginning of pregnancy and dependent upon a morbid state of the alimentary canal; (2) Icterus occurring toward the end of pregnancy, due to compression of the excretory ducts; (3) Jaundice met with at any period of pregnancy, depending upon disease of the liver itself. (*Gazette des Hôpitaux.*)

**DIAGNOSIS OF DIABETES.**—A correspondent writes to the *Gazette des Hôpitaux* on a simple means of recognizing this disease. Every time that a patient in consulting him passed the tongue several times between the lips in the course of conversation he concluded at once that his client was diabetic. Out of thirty-four cases not once did he observe an exception to the rule. The reason why is easily understood—dryness of the mouth—a fact well known to all.

### **Notes and Queries.**

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BODILY LOCATION OF HUMAN HAPPINESS.—Dr. B. W. Richardson, in the *Asclepiad*, treating of felicity as a sanitary research, observes: The center of the emotion of felicity is not in the brain. The center is in the vital nervous system, in the great ganglia of the sympathetic, lying not in the cerebro-spinal cavities, but in the cavities of the heart itself, near the stomach and in the heart. We know where the glow that indicates felicity is felt, and our poets have described it with perfect truthfulness as in the breast. It comes as a fire kindling there. No living being ever felt happy in the head. Every body who has felt felicity has felt it as from within the body.

We know, again, where the depression of misery is located. Our physicians of all time have defined that, and have named the disease of misery from its local seat. The man who is miserable is a hypochondriac, his affection is seated under the lower ribs. No man ever felt misery in the head. Every man who has felt misery knows that it springs from the body, speaks of it as an exhaustion, a sinking there. He is broken hearted, he is failing at the center of life. He is bent down because of the central failure, and his own shoulders, too heavy to be borne, feel as if oppressed by an added weight of burden, under which he bends as though all the cares of the world were upon him to bear him down.

Commenting on this, the *Lancet* says that, in other words, felicity is a physical result of a brisk and healthily full circulation of the blood through the vessels supplying the ganglia of the great sympathetic system of nerves, and whatever quickens and at the same times frees the flow of blood in these vessels, particularly, engenders the feeling we call happiness. This is the fact, and we believe that it explains the action of many

articles of food and medicine and medical appliances. It moreover explains and confirms the truth of the maxim which we have so often recommended for general adoption, "Be briskly, not languidly, joyous if you would be well." This is the converse of the doctrine that happiness is an affair of the heart and stomach. A comfortable, as contrasted with an austere life, is the most natural, and, therefore, the healthiest and best.

We sometimes wonder why those who live by rule, and tremble as they live, laboring to eat and drink precisely what is "good for them," and nothing else, are so weakly and miserable. The cause of failure is that such persons are over careful; life is a burden to them. They have no "go" in their mode of existence. One half of the "dispeptics" we see, and whose sufferings we are asked to relieve, would be well if they were only happy. Every thing in life and nature acts and reacts in a circle. Be happy, and your sympathetic ganglia will have the blood coursing through them with the bounds of health; and this quickening of the pulse, if it be produced by "good cheer," whether at the table or on the mountain-side, will in its turn produce happiness. Felicity is the outcome of physical state, and that state is itself enhanced by the sort of cheerfulness which often consists in being happy in spite of circumstances.

**INGROWING NAILS.**—The following practical hints on the management of ingrowing nails are from the *Journal of Cutaneous Diseases*: When the nail threatens to grow into the skin, or has already injured it, the first indication is to put on a sock of moderate size and to remain quiet. Afterward the nail is to be scraped on the affected side till it is sufficiently thin; then it is to be seized with a delicate forceps, raising it in a sense inversely to its natural curvature. This having been done, a small lamina of lead of a few millimeters' thickness is to be inserted beneath the nail, and after folding it over the toe, it is to be fastened there with a strip of plaster. In this manner, the granulation being no longer in contact with the margin of the nail, the pain ceases, and the sore heals more or less rapidly; during the

whole of this time the apparatus should be frequently inspected so that the lamina of lead may not become displaced. Besides this, it is necessary to scrape the nail every two or three days so as to keep it thin and flexible until the skin returns to its natural state and can resist the pressure of the nail, and then the lead is removed. Hebra treats ingrowing nails in the following manner: Cut some flakes of lint of the length of the lateral groove of the nail, or a little longer. The lint is to be placed under the nail parallel to the groove; then with a flat probe introduce the lint, thread by thread, between the flesh and the nail. Thus the parts are separated, with the little cushions of lint lying between. The sulcus is then to be filled with pledgets of lint, and finally long, narrow strips of adhesive plaster are to be applied, always from above the inflamed sulcus downward, in such a manner that the latter is still farther removed from the margin of the nail. With such a dressing applied with sufficient care there is no pain whatever; and the patient can in a short time put on his ordinary stocking and walk without trouble. After twenty-four hours the strips of adhesive plaster are to be removed, being previously softened in a bath of tepid water. This dressing is to be repeated daily; and in from two to four weeks it will be found that the toe is entirely well.

IMPROVED SUBSTITUTE FOR BLUE OINTMENT.—Vomacka gives the following directions for the preparation of a substitute for blue ointment, which also keeps better: One part of soft and perfectly neutral potash soap is mixed with a little glycerine in a glass mortar, and one part of mercury is added with constant trituration. When no globules of mercury are any longer visible, add two parts more of potash soap to make four parts. It may be scented with lavender or other essential oil. (*Medical and Surgical Reporter.*)

INTERCOSTAL neuralgia, intercostal rheumatism, muscular rheumatism, or lithemia, often gives great pain to the patient and trouble to the physician. We have found Recipe, lithium bro-

mid, two drams; ammoniæ mur. two and a half drams; aq. dist. three ounces; sig. a teaspoonful every half hour; to do more good than any thing we have ever used. It usually gives relief in two hours. (Medical and Surgical Reporter.)

A KNOWING WITNESS.—At a recent trial in this city a medical "expert" was examined in regard to certain points in neurology. In the cross-examination he was asked if he recognized a particular book as authority in the matter, and the question was repeated in regard to another book, and then another. His answers were to the effect that he was familiar with all the books mentioned, and that they were authorities on the matters alluded to. The medical witness was then allowed to leave the stand, and the lawyer's clerk was sworn, who testified that the titles to the works in question were fictitious, having been concocted in the law office to which he was attached. (New York Medical Journal.)

PROFESSOR VIRCHOW, the celebrated anatomist, has written to the newspapers to express his opinion, come to after careful scientific investigation of the subject, that the danger arising from trichinosis in German pork is "infinitely greater" than the peril of an epidemic from American-bred pigs, and that, to be consistent, the Imperial Government, which has forbidden the importation of all sorts of pig-flesh from the United States, ought not to allow the rearing of any swine at all in Germany. (British Medical Journal.)

A NEW INSECTICIDE.—The aqueous or acetic-acid infusion of the flowers of *Delphinium ajacis* is used as an insecticide. Its extreme cheapness and lack of odor distinguish it from other known agents. Its action is as an excitant, rubefacient, astringent, and antizymotic. In many cases this remedy shows a great resemblance to carbolic acid and iodoform. (*Archiv. der Pharmacie.*)

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